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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/652,487

09/02/2003

Hyung-Soo Kim

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04/19/2005

STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

PHAM, HAI CHI

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/652,487

Applicant(s)

KIM, HYUNG-SOO

Examiner

Hai C. Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Double Patenting

3. Applicant is advised that claim **18** is a substantial duplicate of claim 14. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to reject the other as being a substantial duplicate of the allowed claim. MPEP § 706.03(k). Therefore, should the indicated claim(s) be found allowable, the duplicate claim(s) will be rejected under 35 USC § 101.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1, 4-5, 8, 13, 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishibe (U.S. 6,489,982).

Ishibe discloses a scanning optical system comprising a collimating lens (2) in which a beam emitted from a light source (semiconductor laser 1) is transformed into at least one of a convergent beam and a parallel beam with respect to an optical axis (col. 5, lines 46-50) and outputted towards a slit (aperture stop 3), the collimating lens being one sheet of a spherical surface lens having the following characteristics listed in Table 1 (col. 8):

- $R1_{col} = 182.212$ mm (curvature radius of a first surface of the collimating lens opposing the light source)
- $R2_{col} = -20.831$ mm (curvature radius of a second surface of the collimating lens opposing the aperture stop)
- $d3 = 6.00$ mm (center thickness of the collimating lens)
- $f_{col} = 24.636$ mm (focal length from the collimating lens to the light source)

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such that the following relationships:

$$R2col / R1col = 182.212 / (-20.831) = -0.114$$

and $d3 / fcol = 6.00 / 24.636 = 0.12$

amply satisfy the claimed inequalities.

Ishibe further teaches the aperture stop (3) having an elliptic shape with a larger diameter (= 3.08 mm) in the main scanning direction and a shorter diameter (= 1.34 mm) in the sub0scanning direction (Table 1, col. 8, lines 50-52).

Ishibe further teaches the scanning optical system including a cylinder lens (4) in which light beams passing therethrough, are transformed into linear shapes (col. 5, lines 50-58), a rotating polygon mirror (5), and f-theta lens (6), and a photosensitive drum (7).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishibe in view of Naiki (U.S. 6,172,787).

Ishibe discloses all the basic limitations of the claimed invention except for the collimator lens having a positive refractive power.

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Naiki discloses a laser beam scanning optical apparatus using a collimator lens (2) having a positive refractive power in both the main and sub-scanning directions so as to convert the incident diverging laser beam into a parallel beam (col. 3, lines 38-45).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the collimator lens of Ishibe device as having a positive refractive power as taught by Naiki. The motivation for doing so would have been to convert the incident diverging laser beam into a parallel beam as suggested by Naiki.

8. Claims 3, 7, 9-10, 12, 14, 17-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishibe in view of Maddox et al. (U.S. 6,005,703).

Ishibe discloses all the basic limitations of the claimed invention except for the collimator lens being made of glass.

Maddox et al. discloses an optical scanning system including a collimator lens (22), an aperture stop (23) of an elliptic shape, a cylinder lens (24), a rotating polygon mirror (30), a f-theta lens (60) and a photosensitive drum (D), wherein the collimator lens (22) is preferably made of glass because a plastic collimator lens would have its index of refraction excessively changed with temperature (col. 4, lines 53-63).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have the collimator lens in Ishibe device be made of glass as taught by Maddox et al. since the index of refraction of the glass collimator lens would not be affected by the environment as suggested by Maddox et al.

9. Claims 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishibe in view of Maddox et al., as applied to claims 9 and 17 above, and further in view of Naiki.

Ishibe, as modified by Maddox et al., discloses all the basic limitations of the claimed invention except for the collimator lens having a positive refractive power.

Naiki discloses a laser beam scanning optical apparatus using a collimator lens (2) having a positive refractive power in both the main and sub-scanning directions so as to convert the incident diverging laser beam into a parallel beam (col. 3, lines 38-45).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the collimator lens of the modified Ishibe device as having a positive refractive power as taught by Naiki. The motivation for doing so would have been to convert the incident diverging laser beam into a parallel beam as suggested by Naiki.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM
PRIMARY EXAMINER

April 16, 2005